

REMARKS

Upon entry of the instant amendment, claims 1-11 and 12-20 will remain pending in the above-identified application and stand ready for further action on the merits.

In the instant amendment, the Abstract is amended, claim 12 is cancelled, claims 1 and 9 are amended, and new claims 13-20 are added. None of the amendments incorporates new matter into the Application as originally filed.

For example, the amendment to claim 1 finds support at page 8, page 21 (lines 15 and 21), and page 22 (line 6); and the amendment to claim 9 finds support at page 21 (lines 15 and 21), and page 22 (line 6).

New claim 13 finds support at in Table 1 at page 39 of the specification (see line for MAA); new claim 14 finds support at in Table 1 at page 39 of the specification (see line for DMAAm); new claim 15 finds support at page 22 (eight lines from the bottom of the page); new claim 16 is supported by page 24, lines 10 to 12; new claim 17 is supported by page 25, lines 5-10; and new claims 18-20 find support at pages 22-23 of the specification (see page 22, lines 16 and 20, and page 23, line 8).

A clean copy of the new Abstract is provided on a separate page attached hereto.

Claim Objection

Claim 9 has been objected to for the reasons set forth on page 2 of the Examiner's Office Action letter. As the Examiner will note, claim 9 has been amended to correct the inadvertency and accordingly it is believed that this objection has been eliminated.

Claim Rejection – 35 USC § 101

Claim 12 has been rejected by the Examiner under 35 U.S.C. § 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, that is, results in a claim which is not a proper process claim under 35 U.S.C. § 101. This rejection is respectfully traversed.

As the Examiner will note, since claim 12 is now canceled from the present application, it is believed that this rejection has been eliminated and accordingly rendered moot.

Claim Rejections – 35 USC § 112

Claims 9 and 12 have been rejected by the Examiner under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. This rejection is respectfully traversed.

As noted here-in-above, claim 12 has been canceled and accordingly, any rejection relative to claim 12 have been eliminated.

In connection with the Examiner's rejection of claims 9 as noted on page 3 of the Examiner's Office Action letter, it will be recognized that claim 9 has been amended to eliminate the Examiner's rejections as set forth in the Office Action letter.

Accordingly, reconsideration and withdraw of the Examiner's rejection is respectfully requested at present.

Claim Rejections – 35 USC § 102 & § 103

Claims 1-8 and 10-12 have been rejected by the Examiner under 35 U.S.C. § 102(b) as being anticipated by **Honig et al. US ‘766** (U.S. Patent 5,167,766).

Claims 1-8 and 10-12 have been also rejected by the Examiner under 35 U.S.C. § 120(a) as being anticipated by **Chen et al. US ‘540** (U.S. Patent 2006/0066540).

Claim 9 has been rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over **Honig et al. US ‘766** or **Chen et al. US ‘540**.

Each of the above rejections are respectfully traversed, and reconsideration and withdraw of the same is respectfully requested based on the following considerations. These rejections are respectfully traversed.

Legal Standard for Determining Anticipation

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art.” *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir.

1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Legal Standard for Determining Prima Facie Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

“There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

“In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The Present Invention and Its Advantages

The present invention is directed to a paper quality improver wherein the paper quality improver is added to a pulp sheet to improve the stiffness, bulk, etc., of a pulp sheet. The paper quality improver comprises a polymer emulsion containing a natural cationic polymer (A) and polymer particles (B) containing at least vinyl monomer-derived structural units, or a polymer

emulsion containing a synthetic cationic polymer (A') having a viscosity of 20 mPa's or more at 50° C in the form of a 7 wt % aqueous solution and a nitrogen content of 1.08 % or less and polymer particles (B) having vinyl monomer-derived structural units. Advantageously, the polymer particles (B) are present in the form of an emulsion with no cross-linked portion. The polymer particles (B) of the present invention can be highly water-insoluble and can be stably emulsified with either the natural cationic polymer (A) or the synthetic cationic polymer (A'). Such emulsions can be readily obtained by utilizing specific amounts of the monomers as recited in amended claims 1 and 9 of the present application. Thus, it will be noted by the Examiner that claims 1 and 9 have been amended to recite that the monomer units of the polymer particles (B) comprise 94.66 wt % to 100 wt % of at least 1 vinyl monomer-derived structural unit derived from a monomer selected from the group consisting of an alkyl acrylate, a methalkyl acrylate, vinyl fatty esters, styrene and α -methyl styrene.

The percentage range of 94.66 wt % to 100 wt % of the vinyl monomer-derived structural unit is supported by data which can be found in table 1 on page 39 on the present application. Thus, this range can be derived from the description of the examples. In the production of emulsion II, disclosed on page 30, line 4 from the bottom to page 31, line 4, a polymer of styrene and butyl acrylate falls within this range (styrene: 65 + butyl acrylate: 33.79 = 98.79). Also, methyl methacrylate: 70 + butyl acrylate: 28.79 = 98.79 falls within this range.

Distinctions Over the Cited Art

>> Novelty <<

In connection with the rejection of claims 1-8 and 10-12 as being anticipated by **Honig et al.** under 35 U.S.C. § 102(b) or by **Chen et al.** under 35 U.S.C. § 102(a) it would appear that neither of the prior art references relied upon by the Examiner is concerned with providing improvements in stiffness and bulkiness of a pulp sheet. Thus, for example, the Honig et al. patent is directed to the concept of using colloidal silica and bentonite to improve drainage, formation and retention in connection with paper-making. More specifically the Honig et al. patent shows, in column 2, lines 40-46, the use of ionic, organic microbeads for improvement of retention and drainage aid. Furthermore, the Honig et al. patent shows in column 9 line 49 to column 11 line 18 a cationic or anionic polymer which includes acrylamide (AMD) and methylene bisacrylamide (MBA) in large amounts. These materials are hydrophilic. Thus, it can be concluded that in the Honig et al. patent the ionic, hydrophilic polymers therein are cross-linked to form microbeads. This is to be distinguished from the present invention wherein, as stated here-in-above, polymer (B) has no cross-linking portion and a small amount of ionicity.

In still and further distinction from the present invention, the Honig et al. patent cites EP 273605, in column 2, lines 26-39, showing microbeads of vinyl acetate (84.6), ethyl acrylate (65.4) and acrylic acid (4.5) or methacrylonitrile (85), butyl acrylate (65) and acrylic acid (3). Thus, in all instances, the microbeads of the reference patent have two small an ion content to fall within the present invention.

The Chen et al. reference is directed to a method of manufacturing paper and paper board implying a novel flocculating system with the objective of flocculating the suspension, draining

the suspension upon a screen and forming a sheet. More specifically, the prior art reference shows flocculating a suspension of a siliceous material and organic microparticles for improving retention, drainage and product formation (*see* [0019]). Chen et al. further show more than 4 moles ppm of a cross-linking agent and an ionicity of at least 5.0% (*see* [0011]). A further reference to organic microparticles can be found in paragraph [0071], showing acrylamide/sodium acrylate (65/35) in 700 ppm by weight of methylene bisacrylamide as a cross-linking agent. Thus, it is readily apparent that in the Chen et al. reference, cross-linking is preferable and the use of an ionic polymer is preferable. Here again, such a disclosure is completely inconsistent with the present invention wherein advantageously, polymer (B) has no cross-link portion and a small amount of ionicity.

For all of the above reasons, and further view of the fact that neither of the Honig et al. and Chen et al. references are even remotely concerned with the Applicants inventive contribution of improving stiffness and bulkiness of a pulp sheet, it is believed that the present invention is clearly not anticipated by either the Honig et al. or Chen et al. patents.

>> Non-Obviousness <<

Concerning the rejection of claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Honig et al. or Chen et al., it can be categorically stated that all of the deficiencies of these references as discussed above can be equally applied in connection with the Examiner's rejection of claim 9. In addition, the Examiner in page 7 of the Office Action letter recognizes that neither of the references disclose a polymer emulsion having a viscosity of 20mPa-s (50 °C) or more in the form of an aqueous solution (7 wt %) and a nitrogen content of 1.0 wt % or less. The

importance of these features can be seen by referring to page 10 and elsewhere of the present application.

The Examiner, in attempting to overcome the deficiencies of the prior art argues that such claimed properties or functions are presumed to be inherent.

When relying on the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily follows from the teaching of the applied art. See, Ex Parte Levy, 17 USPQ2d 1461, 1464 (BD. Pat. App. & Int. 1990). There can be no speculation or only possibilities involved in a holding of inherency. What is alleged to be inherent must necessarily occur. The mere fact that something *may* result from a given set of circumstances is not sufficient. In re Oelrich, 212 USPQ 323, 326 (CCPA 1991). “Inherent anticipation requires that the missing descriptive material is ‘necessarily present,’ not merely probably or possibly present, in the prior art.” Trintec Indus., Inc. v. Top-U.S.A Corp., 295 F. 3d 1292, 1295, 63 USPQ2d 1597, 1599(Fed. Cir. 2002) (quoting In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)).

Accordingly for the above reasons it is submitted that the outstanding obviousness rejection of claim 9 is not sustainable and must be withdrawn. This conclusion is based on the fact that no motivation or teaching is found in the cited art that would allow or cause one of ordinary skill in the art to arrive at the instant invention as claimed, and the fact that no basis exists for an assertion of inherency on the USPTO’s part.

CONCLUSION

Accordingly in view of the above amendments and remarks reconsideration of the objections and rejection and allowance of the claims of the present application are respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Joseph A. Kolasch Reg. No. 22,463 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: September 18, 2006

Respectfully submitted,

By 

John W. Bailey

Registration No.: 32,881

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road

Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicant

Enclosure: Clean Copy of Amended Abstract on Separate Sheet.